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(54) Title: COLOUR COSMETIC SELECTION SYSTEM

(57) Abstract: A virtual makeover method is provided allowing a customer to select an optimum colour cosmetic palette through interaction with an Internet web site. The method includes downloading from the Internet web site a facial image which may be that of customers themselves, selection of a particular type of colour cosmetic, selection of a first colour from a palette of colours, application of the first colour to areas of the facial image and once the customer is satisfied with the colour selection, placement of an order for that cosmetic product appropriate to the area in the selected colour.

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COLOUR COSMETIC SELECTION SYSTEMField of the Invention

5 The present invention relates to a system for allowing a customer to select a colour palette of facial cosmetics and viewing their visual effect prior to actual application to the customer's face.

10 BACKGROUND OF THE INVENTION & PRIOR ART

Stay at home shopping has become quite popular. Indeed the twenty-first century will likely move a majority of purchasing from the store to the home. Virtual shopping on
15 the Internet is already a lively phenomenon.

Some products are quite difficult to select without personal interaction with the actual product. Colour cosmetics are an excellent example. Consumers are faced with a palette of
20 colour which requires personalization and selection. Lipstick must match with foundation. Eye shadow and lip and eyeliners must be in harmony with other colours painting the face. Until now, the only way a consumer could determine their preferred combination was through applying the actual
25 cosmetic onto the face through trial and error.

Cosmetic customers have been aided by a number of companies in the industry that have sought to provide a means for selecting the customer's optimal colour shade. For example,
30 Clinique and Clarion have installed computers at sales counters for use by the customer. Information on colour shade, oiliness and other properties of a customer's skin are punched into the computer which then determines the company's most closely matching product.

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Custom blending is also offered by two major companies, Prescriptives (a division of Estee Lauder) and Visage (a division of Revlon). They begin a sale by manually evaluating a subject's skin colour. The salesperson is
5 trained through the use of match cards to identify a user's matching skin foundation. Unfortunately manual systems suffer from poor reproducibility. Extensive training must also be invested in the salesperson.

10 U.S. Patent 5,622,692 (Rigg et al.) reports a system for customising a facial foundation product at point of sale to a customer. Three essential elements are present. They include a skin analyser for reading skin properties, a programmable device receiving the reading and correlating it
15 with an optimal formula and a formulation machine for preparing the facial foundation product from various cosmetic chemical compositions. Technology described in this patent has commercially been embodied in Elizabeth Arden's Custom Colour system available for many years in
20 major department stores. Arden's system has been a significant advance in the art.

However, it suffers from certain deficiencies including the inability of customers to evaluate different colour
25 cosmetics in the context of their own skin coloration and in juxtaposition to combinations of different facial makeover products. Thus, it would be desirable to have visualised a lipstick and a foundation, eye shadow and/or blush on a colour interactive basis. Especially desirable would be to
30 evaluate the interaction of the various colour cosmetics without actually having to place these on one's own face.

Another problem of the practiced art has been the inability of a customer to render an informed buying decision far from
35 the store. It is true that the Internet has allowed home

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purchasing of products with which the customer is well acquainted. However, where a product requires a more physical review, such as visualising colour cosmetics, these have not yet rendered themselves suitable for Internet
5 purchase.

Accordingly, it is an advantage of the present invention to provide a system and apparatus for virtual makeover of a facial colour palette without the necessity of the customer
10 actually having to try on each colour cosmetic prior to final selection.

Another advantage of the present invention is to provide a virtual facial colour makeover that can be done in the
15 privacy of the home.

These and other advantages of the present invention will become more readily apparent from the following summary and detailed discussion.
20

SUMMARY OF THE INVENTION

According to a first aspect, the present invention provides a virtual makeover method for furnishing a customer with
25 colour cosmetics including:

- (i) downloading from an Internet web site a facial image;
- (ii) selecting a colour cosmetic from eye shadow, lipstick, foundation, eyeliner, mascara, lip
30 liner, blush and combinations thereof;
- (iii) selecting a first colour from a palette of colours for applying to a specified area of the facial image; and
- (iv) placing an order for the selected cosmetic with
35 corresponding selected colour.

BRIEF DESCRIPTION OF THE DRAWINGS

The various objects, features and advantages of the present
5 invention will become more readily apparent from
consideration of the following drawing in which:

Fig. 1 is a flow chart diagramming a program used in
the system of the invention for selecting facial colour
10 cosmetic schemes;

Fig. 2 shows Screen 2 of the program;

Fig. 3 shows Pop-Up Screen 3 of the program;
15

Fig. 4 shows Pop-Up Screen 4 of the program;

Fig. 5 shows Overlay 5 of the program;

Fig. 6 shows Screen 6 of the program;
20

Fig. 7 shows Overlay 7 of the program;

Fig. 8 shows Pop-Up Screen 8 of the program;
25

Fig. 9 shows Pop-Up Screen 9 of the program;

Fig. 10 shows Pop-Up Screen 10 of the program;

Fig. 11 shows Pop-Up Screen 11 of the program;
30

Fig. 12 shows Pop-Up Screen 12 of the program;

Fig. 13 shows Pop-Up Screen 13 of the program;
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Fig. 14 shows Pop-Up Screen 14 of the program;

Fig. 15 shows Overlay Screen 15 of the program;

5 Fig. 16 shows Pop-Up Screen 16 through 19 of the
program;

Fig. 17 shows Pop-Up Screen 20 of the program;

10 Fig. 18 shows Pop-Up Screen 21 of the program;

Fig. 19 shows Pop-Up Screen 22 of the program;

Fig. 20 shows Pop-Up Screen 23 of the program;

15

Fig. 21 shows Screen 24 of the program; and

Fig. 22 shows Overlay 25 of the program.

20

DETAILED DESCRIPTION OF THE INVENTION

Now it has been found that virtual makeover can be accomplished on-line through an Internet web site. A visualising facial image is projected onto a monitor. The customer is then given the ability to paint various areas of the face representing locations normally to be covered by eye shadow, lipstick, foundation, eyeliner, mascara and the like. These different areas of the face can be painted with a variety of different colours from the cosmetic product palette until an optimum combination is reached satisfactory to a look which the customer desires. A final step of the method involves placement of an order with a vendor for cosmetic products with the chosen colour. No longer does a customer actually need to try the product on his or her own

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face. A very rapid and clean evaluation can occur through use of the visualised model face.

As an optional feature, the customer may input a measurement
5 of their actual facial skin colour. Such measurement can occur through use of a home video camera that transmits digitalized information to the web site. Measured true skin colour values may also be obtained by the customer visiting a point-of-sale location (e.g. store) where such
10 measurements can be taken by a vendor representative and fed into the web site database for future use at the customer's home location.

Advantageously the facial image appearing on the web site is
15 initially coloured with a shade representing the customer's actual measured shade. Colours for lips and eye areas can then be manipulated through the computer program and visualised on the facial image for selection of the most desired combination. Particularly preferred is display of a
20 facial image corresponding exactly to that of the customer based on the earlier digitalized photographic input of the customer's face.

Fig. 1 is a flow chart of a program according to one
25 embodiment of this invention. After the opening screen, a user is introduced to Screen 2 known as the 'customer session'. Client information is obtained via this screen through either a swipe card, entry via a keyboard or from a database. The screen remains active (buttons are available)
30 when overlays are displayed. Fig. 1 provides a view of Screen 2.

A Pop-up Screen 3 next appears with comments and client information to prompt follow-up calls. This screen can be
35 used for contacting the client to remind them to visit the

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store when their cosmetic supply may be low. Fig. 3 illustrates the screen.

Pop-up Screen 4 covering 'Maintenance' is then available for appearance. This pop-up screen has options for calibration and data handling. Fig. 4 sets forth the screen.

Other information is collected with Overlay Screen 5. The Overlay screen selects/changes information about skin, beauty habits, type and brand of products used. Overlay Screens 2 and the buttons on Screen 2 remain active. Fig. 5 describes Overlay Screen 5.

Screen 6 provides a 'Consultant's Choice'. This screen shows effects of colour palette, using client's skin colour. Information on the client's skin colour is obtained through application of a hand-held spectrophotometer against areas of the face not likely to be covered by makeup. These areas include the neck and under chin areas. The cosmetic 'look' can either be based on skin colour (skin recommendation), lipstick colour (colour family), or a specific look. Depending on selections, a list of typically five 'looks' is created, and selecting (another look) displays next look in the series. Fig. 6 sets forth Screen 6.

Purchase information is achieved in Overlay Screen 7. This screen with previous and current purchase information (overlay to screen 2) is ordered by visit date. It contains information from up to the last five visits. Purchase information includes number, product type, product name and product number. Fig. 7 sets forth the purchase information screen.

Pop-up Screen 8 measures skin colour. It consists of a series of screens to assist an adviser with colour

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measurement. This session is repeated three times. Fig. 8 depicts the Pop-up Screen 8.

Pop-up Screen 9 serves to obtain information for a new store. It is used by the installation team to correctly set up the store-specific parameters. Fig. 9 describes the Pop-up Screen 9.

Collection of data for the main office is found in Pop-up Screen 10. Data is placed in a store's outbox, and can then be transferred in three ways. These include: (1) remote computer can dial in and retrieve file from outbox; (2) transfer information to a server automatically using PC-anywhere script; and/or (3) copied to floppy disk and mailed to central site. Fig. 10 illustrates the Pop-up Screen 10.

Pop-up Screen 11 copies data from other stores. It can accept data in two ways. These include: (1) update using floppy supply by the main office; or (2) use of PC/Anywhere script to retrieve update file from main office outbox. Fig. 11 illustrates the Pop-up Screen 11.

Pop-up Screen 12 allows selection of a colour lipstick family. The customer advisor can either enter a specific lipstick number, or choose a colour family, then choose a colour from the family. The active colour palette will consist of individual palettes that contain that lipstick. The advisor can also enter a specific look (which can be either from a previous visit, or any of the available looks in the palette). Fig. 12 describes the pop-up Screen 12.

Pop-up Screen 13 allows selection of lipstick from a colour family (as selected from Pop-up Screen 12). If the lipstick is also in the palette recommendation based on skin tone,

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the colour is put first in the list, and (expert fit) is added to the name. Fig. 13 describes the Pop-up Screen 13.

5 Pop-up 14 shows product selections (e.g. treatments in cosmetic colours) made during the present session. Product selections can be made during colour viewing (Screen 6), treatment/product options (Overlay 24) or Recommended Foundation (Pop-up Screen 20). There also is a display of recommended looks. Fig. 14 describes the Pop-up Screen 14.

10

Overlay Screen 15 is used to provide a snapshot of the type of customer. For detail purchase history, Overlay 7 provides the purchase information. Included in this screen are key purchase properties, group by type, over the past
15 twelve months. It is automatically displayed for each customer. Fig. 15 lists the Overlay Screen 15.

Pop-up Screen 16 is a probe for calibration/routine and for messages to calibrate probe. Fig. 16 details the Pop-up
20 Screens 16-19.

Pop-up Screen 20 is used to recommend the best foundation product combination based on skin colour and product preferences. Fig. 17 details the Pop-up Screen 20.

25

Pop-up Screen 21 is an advanced data management module. This is used by the main office. Fig. 18 details the Pop-up Screen 21.

30 Pop-up Screen 22 relates to language selection. Fig. 19 details Pop-up Screen 22.

Pop-up Screen 23 is used to locate and activate a client. If this is a new client, the 'new' button is clicked to

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create the new client file. Fig. 20 details Pop-up Screen 23.

Screen 24 details treatment/colour/fragrance options showing
5 all the option products. Fig. 21 details Screen 24.

Overlay 25 focuses on skin colour analysis allowing
selection of shade and tone. Fig. 22 details the Overlay
25.

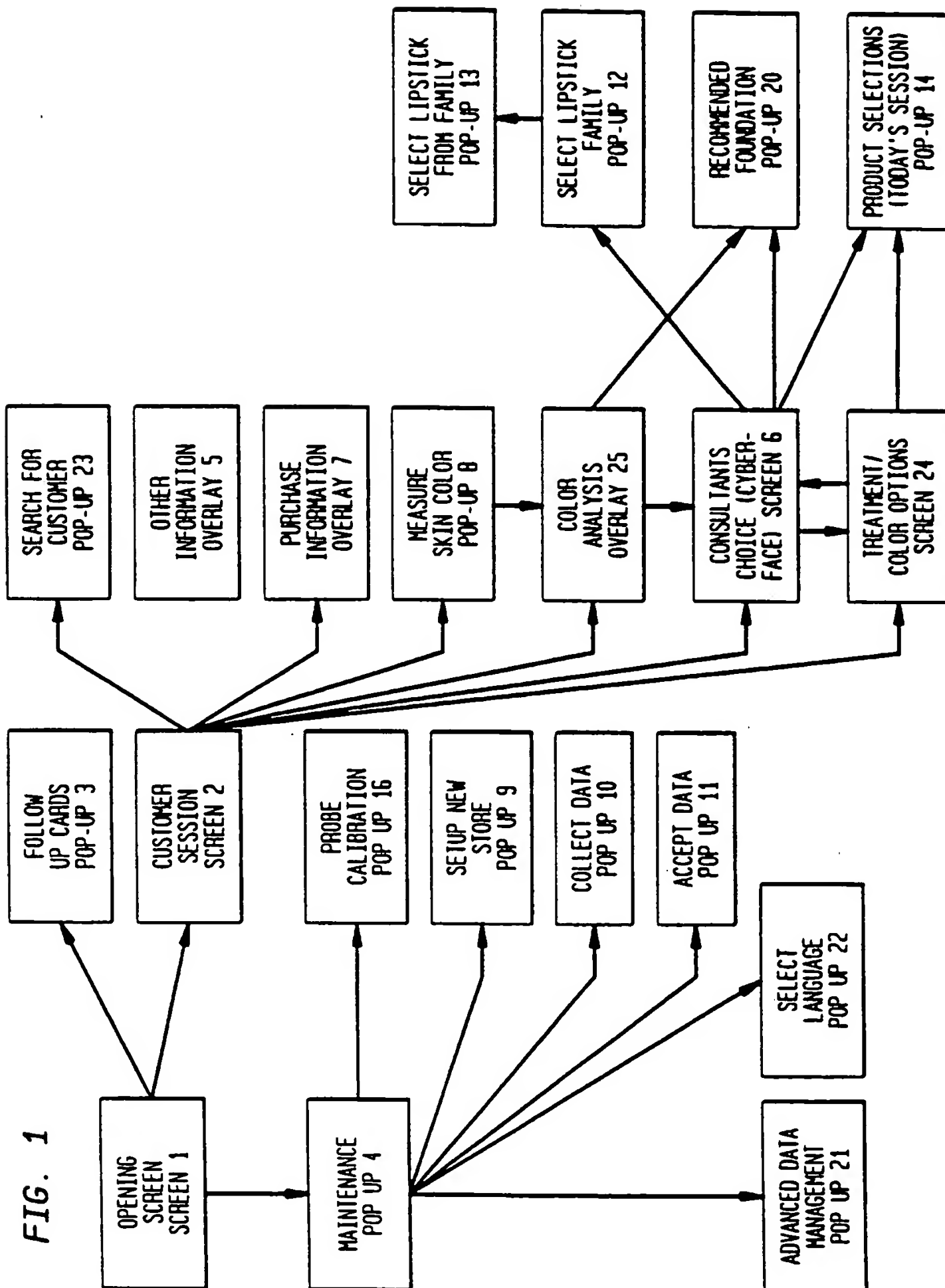
10

The foregoing description illustrates selected embodiments
of the present invention. In light thereof variations and
modifications will be suggested to one skilled in the art,
all of which are within the scope of this invention.

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CLAIMS:

1. A virtual makeover method for furnishing a customer with colour cosmetics, the method comprising:
 - 5 (i) downloading from an Internet web site a facial image;
 - (ii) selecting a colour cosmetic from eye shadow, lipstick, foundation, eyeliner, mascara, lip liner, blush and combinations thereof;
 - 10 (iii) selecting a first colour from a palette of colours for applying to a specified area of the facial image; and
 - (iv) placing an order for the selected cosmetic with corresponding selected colour.
- 15 2. The method according to claim 1 wherein the facial image is painted with the customer's own natural skin colour.
3. The method according to claim 2 wherein the customer's
20 own natural skin colour has been stored as digitalized information accessible to the web site, the digitalized information having been obtained through measurement of a customer's actual skin.
- 25 4. The method according to claim 3 wherein measurement of a customer's actual skin occurs at the customer's home through use of a camera with capability of digitalizing information taken from measurement of the customer's skin and a mechanism for transmitting the digitalized information to a
30 central memory controlling the web site.



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FIG. 2

Beauty # _____ Name: Customer # ☐ Verify Address and Cust Infol

Personal Information

Name

Last Name

Address

City

Zip Code

Profession

Telephone

Date of Birth

State

Day

Month

[SEARCH]

[NEXT]

[PREVIOUS]

[CANCEL]

[CLOSE]

☐ Regular Client ☐ Responds to Promotions ☐ Responds to Mailing

(Overlay area - not to scale)

[OTHER INFORMATION]

[PURCHASE HISTORY]

[PURCHASE INFORMATION]

[PRODUCT OPTIONS]

[MEASURE SKIN COLOR]

[COLOR ANALYSIS]

[SHOW COLOR]

FIG. 3

Customer follow up cards

With clients information

List of Names	Information On Selected Customer.

[] CALL COMPLETE

[PRINT]

[CLOSE]

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FIG. 4

MAINTENANCE

[CALIBRATE SKIN READER]
[LANGUAGE]
[SET UP NEW STORE]
[COLLECT DATA FOR MAIN OFFICE]
[ACCEPT DATA FROM LOCAL STORES]
[ADVANCED DATA MANAGEMENT]
[CLOSE]

FIG. 5

OTHER INFORMATION

Skin Type	Age Profile	Beauty Habits	Fragrance	Other Brands
⊕ Sensitive	15-20	Make-up	Cologne	Biotherm
	20-30	Cleanser/Toner	Perfume	Channel
Normal to dry	30-40	Moisturizer	More than one	Clarins
Normal to oily	40-50	Special Treat.	Bath line	Clinique
Dry	50+	Sunscreens		Dior
Oily		Body Products		Estee Lauder
				H. Rubenstein
				Lancaster
				Lancome
				Shiseido
				YSL
				Other

Special Preferences of Needs:
Prefers fragrance free products

[Accept]

FIG. 6

(Customer Name)	(Date)
<div>Cyberface Screen With look #, and individual color name</div>	[ANOTHER LOOK] [SELECT LIPSTICK FAMILY] [CONSULTANT'S CHOICE] [PRODUCT OPTIONS] [FOUNDATION]
	<div>PRODUCT SELECTIONS</div>

FIG. 7

Purchase Information		
Today	1	JANE DOE
(1) Lipstick	125	Purchased
(1) Hydrolight	Bisque	Recommended
(1) Mousse	Bisque	Not Appropriate
Date	905	JANE DOE
(2) Ceramide Complex		Sampled

[Recommended]
[Purchase]
[Sample]
[Not Appropriate]
[Remove]

Today		
Look 001	Plums	Recommended
Look 003	Reds	Recommended
Look 004	Naturals	Recommended

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FIG. 8

MEASURE SKIN WITH COLOR READER

PRESS MEASURE TO RECORD COLOR FROM READER

OR ENTER L, A, B VALUES FROM REMOTE

L=	A=	B=
L=	A=	B=
L=	A=	B=

COLOR READER IDENTIFICATION:

Foundation Color Match: [MEASURE]
[ACCEPT]
[CANCEL]

FIG. 9

Set up New Store

Store Name	Store Number	City Number

Highlight to Select New Store

Store	<div>A B C D E F</div> <div>↓</div>
-------	---

[ACCEPT]
[CANCEL]

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FIG. 10

Collect Data for Main Office	
Retrieve Monthly Data To be sent to Main Office	January February March April May June ↓
Select Month(s) and press Collect	
Create Disk? Yes/No	
Connect? Yes/No	[COLLECT] [CANCEL]

FIG. 11

Accept Data from Server		
Store Name	Store Number	City Number
Highlight to Select New Store		
Available Stores	A B C D E F ↓	
		[CONNECT] [ACCEPT] [CANCEL]
Copy Data from Disk? Yes/No		

FIG. 12

Lipstick Color Families

Reds

Corals

Pinks

Naturals

Plums

Enter Number of Lipstick

Enter Number of Look

[ACCEPT]

[CANCEL]

FIG. 13

Lipstick Family:Reds

022 Hollywood Red (Expert Fit)

033 Lush Red

244 Vintage

255 Gypsy

375 Baroque Red

[ACCEPT]

[CANCEL]

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FIG. 14

Today's Product Selections				
(#) Product Type	Color			
⊗ (1) Lipstick	121	Recommended		[Recommended]
⊗ (2) Hydrolight	Bisque	Purchased		[Purchase]
⊗ (1) Mousse	Bisque	Recommended		[Sample]
				[Not Appropriate]
⊗ Look 321	Reds	Recommended		[Remove]
⊗ Look 496	Plums	Recommended		[Print]
				[Accept]

FIG. 15

Purchase History		
Last purchase:	Date	Jane Doe
Total purchases:	2 (Last)	12 (Past Year)
SkinCare (3)		
⊗(4) Ceramide Capsules	30 Jan	Purchased
⊗(3) Millenium Cream	30 Nov	Purchased
⊗(2) Perfection Cream	30 Nov	Purchased
Color (2)		
⊗(1) Flawless Finish (121)	30 Jan	Purchased
⊗(1) Exceptional Lipstick (906)	30 Dec	Purchased
Fragrance (1)		
⊗(1) Sunflowers	30 Oct	Purchased
⊗(1) Red Door	30 Sep	Purchased
Fragrance (1)		
⊗ Red Door	30 Jan	Sampled
⊗ Exceptional Lipstick	30 Jan	Recommended
⊗ Perfection Cream	30 Jan	Non-Appropriate
⊗ - Denotes product type icon		

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FIG. 16

Pop-up 16	Pop-up 17	Pop-up 18	Pop-up 19
Probe Calibration Probe not calibrated! Warning: Skin Reader not calibrated - Continue anyway? (Y or N)	Switch to Set Cal. Plate Turn color reader off and on. Reader display should read 'Set Cal. Plate'. Press (Enter) when ready! Cancel	Ready to Read Color Tile Place Color Reader on the White Plate. Press (Enter) when ready! Enter	Color Reading in Progress... Press button on color reader twice slowly To record calibration color Stop! Probe calibrated. OK to continue? Continue

FIG. 17

Recommended Flawless Finish Foundation		
Product	Color	
Mousse	234	[Recommend]
Hydrolight	123	[Purchase]
Pressed Powder	Medium 2	[Sample]
		[Accept]

FIG. 18

Update Doors	Yes	No	
Update Product List	Yes	No	
Export new Clients	Yes	No	[Import Update File]
			[Create Update File]
Clean returns database	Yes	No	[Print Returns]
Delete entries more than	3 months		
	6 months		[Connect]
	9 months		[Close]
	12 months		

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FIG. 19

Language Selection

[English]

[Spanish]

[French]

FIG. 20

Search for Customer

Name:	
List of Names	Information On Selected Customer

[ACCEPT]
[NEW CUSTOMER]
[CANCEL]

FIG. 21

Treatment/Color Product Options

Product	Color
Skin Illuminating Complex	
Millenium Night	
Millenium Energist	

Advertisement
Video

[]Treatment
[]Color
[]Fragrance

[Recommend]
[Purchase]
[Sample]
[Not appropriate]

[What's New]

[ACCEPT]
[CANCEL]

FIG. 22

Skin Color Analysis	Color Enhancements Options	
<div style="border: 1px solid black; height: 60px; width: 100%;"></div>	<div style="border: 1px solid black; padding: 5px;"> { Lighten color } { Darken color } </div>	<div style="border: 1px solid black; padding: 5px;"> { Recommend Foundation } { Show Colors } { Close } </div>
<div style="border: 1px solid black; height: 60px; width: 100%;"></div>	<div style="border: 1px solid black; padding: 5px;"> { Reduce Pink (add golden) } { Reduce golden (add pink) } </div>	
<div style="border: 1px solid black; height: 60px; width: 100%;"></div>		
Preferred Finish: <input type="checkbox"/> Matte <input type="checkbox"/> Natural		

INTERNATIONAL SEARCH REPORT

Intern nal Application No

PCT/EP 00/05459

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06T11/00 A45D44/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06T A45D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, EPO-Internal, IBM-TDB, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	EP 1 030 267 A (DRDC LIMITED ET AL.) 23 August 2000 (2000-08-23) the whole document	1-4
X	& WO 98 39735 A (SCALAR CORP ET AL.) 11 September 1998 (1998-09-11) the whole document	1-4
X	WO 99 23609 A (V.O.F. HEADSCANNING) 14 May 1999 (1999-05-14) page 5, line 12 - line 23 page 7, line 22 -page 9, line 17	1-4
A	US 5 478 238 A (GOURTOU ET AL.) 26 December 1995 (1995-12-26) the whole document	1-4

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

23 November 2000

Date of mailing of the international search report

01/12/2000

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 00/05459

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 495 338 A (GOURIOU ET AL.) 27 February 1996 (1996-02-27) the whole document	1-4
A	DE 34 19 568 A (GEORG KARL GEKA-BRUSH GMBH) 28 November 1985 (1985-11-28) the whole document	1-4
A	US 4 539 585 A (SPACKOVA ET AL.) 3 September 1985 (1985-09-03) the whole document	1-4
A	EP 0 226 959 A (HORIKITA) 1 July 1987 (1987-07-01) the whole document	1-4

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern. Appl. Application No

PCT/EP 00/05459

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1030267	A	23-08-2000	JP 10255066 A WO 9839735 A	25-09-1998 11-09-1998
WO 9923609	A	14-05-1999	NL 1007397 C AU 1177499 A BR 9813176 A EP 1021797 A	12-05-1999 24-05-1999 22-08-2000 26-07-2000
US 5478238	A	26-12-1995	EP 0638261 A CA 2146134 A DE 69301239 D DE 69301239 T ES 2085741 T WO 9503727 A JP 2986214 B JP 8505078 T US 5797750 A	15-02-1995 09-02-1995 15-02-1996 14-08-1996 01-06-1996 09-02-1995 06-12-1999 04-06-1996 25-08-1998
US 5495338	A	27-02-1996	FR 2690822 A CA 2134985 A DE 69301129 D EP 0569291 A EP 0646339 A WO 9321794 A JP 7506504 T DE 69301129 T ES 2085734 T	12-11-1993 11-11-1993 08-02-1996 10-11-1993 05-04-1995 11-11-1993 20-07-1995 04-07-1996 01-06-1996
DE 3419568	A	28-11-1985	NONE	
US 4539585	A	03-09-1985	NONE	
EP 226959	A	01-07-1987	JP 62144280 A CA 1261967 A	27-06-1987 26-09-1989

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